

SYSTEM FOR THERMAL AND CATALYTIC CRACKING OF CRUDE OIL

ABSTRACT OF DISCLOSURE

In this invention the system and processes for organization of oil refinery from gases and heavy admixtures with a separation of purified oil for fractions obtained in the process of thermal distillation, and thermal and catalytic cracking and subsequent fine separation of products for narrow fractions are presented. The combining of vortex vapor generation processes of preliminary heated oil in the field of inertia forces of rotating liquid with condensation processes of gaseous products at reduced pressure in vortex vapor condensers with cooled walls with utilization of subsequent heating and productions of fuels with narrow fraction composition permits to obtain a high quality product. New types of vortex devices are presented: the vortex separator of oil from water and admixtures, the vortex vapor generator for production of fine vapor fractions, the vortex vapor condenser for condensation of vaporized fractions, the vortex vapor generator in a catalyst layer moving in a boiling layer, which is a catalytic reactor with a regulated contact time between a catalyst and a boiling layer. A two-zone combustion furnace helps to decrease energy spending, improves combustion completeness.